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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,333

07/25/2007

Masahiro Ogawa

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6520

23838 7590 10/31/2008

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EXAMINER

NGUYEN, HOANG M

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

10/31/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,333	<b>Applicant(s)</b> OGAWA ET AL.	
	<b>Examiner</b> Hoang M. Nguyen	<b>Art Unit</b> 3748	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-8,10,14,15,19,21 and 24-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-8, 10, 14-15, 19, 21, 24-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

Applicant's amendment dated September 11, 2008, has been fully considered.

Applicant argued the Examiner uses "hindsight reconstruction" and "Official Notice" to reject the claims and there is no motivation to combine the references. The Examiner strongly disagrees because the secondary reference, Spinnler, clearly provides many motivations for using the compress/expander with the same central disk. For example, on column 2, lines 27-31, Spinnler states "The advantage of the invention is .... very simple, ... cost effective; on column 3, lines 28-30, note "The weight of the overall compressor/expander is thus lower..". Therefore, it's clear that the 103 rejections are not impermissible hindsight reconstruction. The Examiner did not use Official Notice to combine the references. The Examiner only uses Official Notice for high conductive material like aluminum and heat resistance material like iron. However, in this Office Action, the Examiner will provide prior art to support his positions about the materials.

Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 39 dependent from claim 42 which is not in the application.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3748

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-8, 10, 15, 24-32, are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6651433 (George, Jr.) in view of U.S. 6579080 (Spinnler).

George, Jr. discloses a system using waste heat from an internal combustion engine 10 for driving a bottoming Brayton system including a compressor 11, an expander 12 connected to a drive shaft 13. George, Jr. does not disclose the compressor and expander are scroll type with common orbital scroll. Spinnler is relied upon to disclose it's well known to have both scroll compressor having chamber 11a and a scroll expander having chamber 11b with the same orbital scroll formed by a disk 2 with spiral scroll 3a, 3b. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the scroll compressor/expander in Spinnler in place of the compressor/expander of George, Jr. for the purpose of achieving a compact structure and because the compressors/expanders are functionally equivalent.

Claims 14, 33-37, are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6651433 (George, Jr.) in view of U.S. 6579080 (Spinnler) and US 4008573 (Petrillo) and US 6196817 (Tsumagari et al). George, Jr. as modified by Spinnler discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose an aluminum compressor casing and scroll member, plus an iron expander. Petrillo discloses it's well known to use iron expander 26 (note abstract and column 1, lines 58-60). Tsumagari et al teaches it's well known to have aluminum

Art Unit: 3748

compressor housing 110 and scroll members 111, 112 (column 2, lines 56-61). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use aluminum to form the compressor casing and scroll member in George, Jr. (added from Spinnler) as taught by Tsumagari et al , and to use iron expander in George, Jr. as taught by Petrillo for the purpose of achieving appropriate heat conducting and resisting at appropriate locations in the system.

Claims 19, 21, are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6651433 (George, Jr.) in view of U.S. 6579080 (Spinnler) and US 7076963 (Higashiyama). George, Jr. as modified by Spinnler discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose a through hole formed in the orbital portion. Higashiyama is relied upon to disclose it's well known to provide a communication hole 30, 31 in the partition disk. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide holes in the orbital disk in George, Jr. (added from Spinnler) to have a through hole as taught by Higashiyama for the purpose of allowing the fluid communication between both sides of the disk.

Claims 38-40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6651433 (George, Jr.) in view of U.S. 6579080 (Spinnler), Higashiyama, and US 4008573 (Petrillo) and US 6196817 (Tsumagari et al). George, Jr. as modified by Spinnler and Higashiyama discloses all the claimed subject matter as set forth above in

Art Unit: 3748

the rejection of claim 19, but does not disclose an aluminum compressor casing and scroll member, plus an iron expander. Petrillo discloses it's well known to use iron expander 26 (note abstract and column 1, lines 58-60). Tsumagari et al teaches it's well known to have aluminum compressor housing 110 and scroll members 111, 112 (column 2, lines 56-61). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use aluminum to form the compressor casing and scroll member in George, Jr. (added from Spinnler) as taught by Tsumagari et al, and to use iron expander in George, Jr. as taught by Petrillo for the purpose of achieving appropriate heat conducting and resisting at appropriate locations in the system.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Nguyen whose telephone number is (571)

Art Unit: 3748

272-4861. The examiner can normally be reached on Tuesday--Friday from 12:30 AM to 10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hoang M Nguyen/  
Primary Examiner, Art Unit 3748

HOANG NGUYEN  
PRIMARY EXAMINER  
ART UNIT 3748

Hoang Minh Nguyen  
11/1/2008